BRADLEY LAKE HYDROELECTRIC PROJECT

FERC No. 8221

BRADLEY LAKE EXPANSION NON-CAPACITY LICENSE AMENDMENT

EXHIBIT C
CONSTRUCTION HISTORY

https://www.ecfr.gov/current/title-18/part-4/subpart-F#p-4.51(b)

Prepared for:

Alaska Energy Authority
813 West Northern Lights Boulevard
Anchorage, Alaska 99503-2495

Prepared by:
Kleinschmidt Associates

February 2026

TABLE OF CONTENTS

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

A	
AEA	Alaska Energy Authority, formerly Alaska Power Authority
B	
Bradley Lake Expansion Project	license amendment for Dixon Diversion and Bradley Lake Pool Raise
Bradley Lake Pool Raise	16-foot pool raise to Bradley Lake
Bradley Lake Project	Bradley Lake Hydroelectric Project (FERC No. 8221)
D	
Dixon Diversion	new diversion dam and appurtenant features at the toe of the Dixon Glacier, diversion tunnel, and exit portal access road
F	
FERC	Federal Energy Regulatory Commission
P	
Project	Bradley Lake Expansion Project
U	
USACE	United States Army Corps of Engineers
W	
WFUBC	West Fork Upper Battle Creek

1.0 INTRODUCTION

The Alaska Energy Authority (AEA), Licensee and owner of the 120-megawatt Bradley Lake Hydroelectric Project (Bradley Lake Project; Federal Energy Regulatory Commission [FERC] No. 8221), is pursuing a FERC license amendment to an existing license. AEA proposes to build a new diversion dam (Dixon Diversion) to divert seasonal meltwater coming from the Dixon Glacier, located at the headwaters of the Martin River, to Bradley Lake via an underground tunnel. AEA also proposes to raise the normal maximum operating pool elevation of Bradley Lake by about 16 feet (Bradley Lake Pool Raise) through a combination of raising the concrete spillway crest elevation, adding spillway crest gates, and raising the dam embankment crest. Together, these two components make up the Bradley Lake Expansion Project (Project), which would increase the Bradley Lake Project's generating capacity and providing more power to the Railbelt. This Exhibit C provides the construction history of the Bradley Lake Project as well as the preliminary schedule for the Bradley Lake Expansion Project.

2.0 CONSTRUCTION HISTORY

2.1 Original Construction

The power generation potential of the Bradley Lake Project was first studied by the United States Army Corps of Engineers (USACE) and presented in a report dated March 1955. The Bradley Lake Project was authorized by Congress in 1962, but despite its feasibility, federal funds were not available for its construction. The AEA (then Alaska Power Authority) assumed responsibility for the Bradley Lake Project in 1982. Preliminary plans were developed and field investigations started in 1982. In April 1984, the AEA submitted an application for license to FERC. The license to construct the Bradley Lake Project was issued on December 31, 1985, and the Bradley Lake Project was operational in 1991.

The 1991 Bradley Lake Project works consisted of: (a) a low diversion dike at the outlet of the Nuka Glacier pool into the upper Nuka River and a rock cut, diverting flow into the upper Bradley River; (b) a diversion on the Middle Fork Bradley River that consists of a small intake basin and two excavated reaches of open channel, separated by a stilling basin that conveys water from the Middle Fork of the Bradley River to Marmot Creek, a tributary of Bradley Lake; (c) a low diversion dam on the East Fork Upper Battle Creek that diverts water to an unnamed tributary of Bradley Lake; (d) a concrete-faced rockfill dam and a parapet wall on the crest; (e) an ungated ogee spillway located on a saddle feature east of the dam; (f) the existing Bradley Lake; (g) a 407.5-foot-long, 10.5-foot-nominal diameter horseshoe-shaped tunnel through the east abutment for emergency flow releases; (h) two 28-inch diameter pipes with motor-operated valves to release the required Bradley River minimum instream flows; (i) an intake channel; (j) an intake structure with removable trashracks; (k) an concrete lined power tunnel consisting of: (1) a horizontal section with dual gates downstream of the intake, operated through a vertical gate shaft; (2) an inclined section; and (3) a main section with steel lining on the downstream side; (l) a steel penstock consisting of a roll-out section and a manifold section with three outlets, one capped and two with branches; (m) a reinforced concrete powerhouse containing two generating units; (n) a tailrace channel discharging into Kachemak Bay; (o) the generator leads; (p) a transformer; (q) a double circuit transmission line from the substation adjacent to the powerhouse to Bradley Junction; (r) access facilities including a barge basin and ramp and Bradley Lake Project roads connecting powerhouse lower and upper construction camps, and the dam; (s) recreation facilities

consisting of camp sites near the barge basin dock and near Bradley Lake; and (t) appurtenant facilities.

See Exhibit A for additional information on the Bradley Lake Project description.

2.2 Modifications or Additions to the Existing Project

In 1999,[1] the Bradley Lake Project eliminated the small craft dock and replaced it with an existing boat ramp located at the barge dock.

In 2004, the Bradley Lake Project deactivated its use of the Martin River airstrip field as it was no longer needed for Bradley Lake Project purposes and posed security risks.

In 2016, the West Fork Upper Battle Creek (WFUBC) Diversion was approved by FERC.[2] This included a diversion dam on the WFUBC diverting water through an underground pipeline and canal into a natural channel flowing into Bradley Lake. The WFUBC Diversion is a surface water diversion to the existing Bradley Lake reservoir that does not impound water, nor does the diverted water cause the existing capacity of the Bradley Lake reservoir to be exceeded. The WFUBC Diversion became operational in July 2020.

See Exhibit A for additional information on the Bradley Lake Project description.

[1] Accession No. 19991210-0061
[2] Accession No. 20160906-3039

3.0 PROJECT SCHEDULE OF NEW DEVELOPMENT

3.1 Preliminary Project Schedule

The Bradley Lake Expansion Project schedule presents milestones for construction, allowing time for FERC review of required construction documents. Bidding and construction activities are anticipated to occur in the timeframes below. Due to the schedule considerations, AEA requests the Commission approve construction to begin within 3 years of receiving FERC's authorization and be completed within 6 years of receiving FERC's authorization.

3.2 Schedule considerations

The construction schedule below (Table 3.3-1) considered several important factors, including but not limited to:

- Weather patterns;
- Bird nesting periods as related to removal of vegetation, excavation, and blasting;
- Logistics regarding equipment and commodities deliveries history;
- Compliance with any Alaska Department of Fish and Game Fish Habitat Permit and USACE permit stipulations;
- Timing of approvals/authorizations for the Bradley Lake Expansion Project construction by FERC; and
- Level of large contractor activity in Alaska at time of advertisement for bids.

3.3 Construction Schedule

A more detailed construction schedule will be prepared by the contractor awarded the construction of the Bradley Lake Expansion Project. A Preliminary Project Schedule is provided in Table 3.3-1. However, due to Alaska's short construction season, the timing of the state's legislative session relative to its fiscal year, and state procurement procedures, AEA requests the Commission approve construction to begin within 3 years of receiving FERC's authorization and be completed within 6 years of receiving FERC's authorization.

AEA may begin site preparations, i.e., clear vegetation, in the summer of 2027.

Table 3.3-1 Preliminary Project Schedule.

Project Milestone	Timeframe
Submit Application to FERC	June 2026
Respond to FERC Additional Information Requests and Agency Terms and Conditions	Summer 2026
Project License Amendment Approved	June 2027
Bidding Documents Completed for Issuance	March 2027
Advertise for Bids	March-June 2027
Pre-Bid Site Visit and Pre-Bid Conference	June 2027
Bid Opening	July/August 2027
Award Bid	August/September 2027
Notice to Proceed	September 2027
Begin Construction, Including Camp Mobilization	April 2028
Construction Period	April 2028-September 2031
Project Completion, Including Demobilization	October 2031